Santanu Dey

Indian Institute of Technology Bombay

$\mathfrak{K}$-families and CPD-H-extendable families

Abstract

We introduce, for any set S, the concept of $\mathfrak{K}$-family between two Hilbert C^*-modules over two C^*-algebras, for a given completely positive definite (CPD-) kernel $\mathfrak{K}$ over S between those C^*-algebras and obtain a factorization theorem for such $\mathfrak{K}$-families. If $\mathfrak{K}$ is a CPD-kernel and E is a full Hilbert C^*-module, then any $\mathfrak{K}$-family which is covariant with respect to a dynamical system (G, η, E) on E, extends to a $\tilde{\mathfrak{K}}$-family on the crossed product $E \times_\eta G$, where $\tilde{\mathfrak{K}}$ is a CPD-kernel. Several characterisations of $\mathfrak{K}$-families, under the assumption that E is full, are obtained and covariant versions of these results are also given. One of these characterizations says that such $\mathfrak{K}$-families extend as CPD-kernels, between associated (extended) linking algebras, whose $(2, 2)$-corner is a homomorphism and vice versa. We discuss a dilation theory of CPD-kernels in relation to $\mathfrak{K}$-families.

Talk time: 07/19/2016 5:00PM— 07/19/2016 5:20PM
Talk location: Cupples I Room 113

Special Session: State space methods in operator and function theory. Organized by J. Ball and S. ter Horst.